(19) World Intellectual Property Organization

International Bureau





(43) International Publication Date 21 July 2005 (21.07.2005)

PCT

(10) International Publication Number WO 2005/066613 A1

(51) International Patent Classification⁷: B01L 3/00, G01N 33/58

G01N 21/53,

(21) International Application Number:

PCT/US2004/043585

(22) International Filing Date:

29 December 2004 (29.12.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

60/533,627 60/539,416 31 December 2003 (31.12.2003) US 26 January 2004 (26.01.2004) US

(71) Applicant (for all designated States except US): PRES-IDENT AND FELLOWS OF HARVARD COLLEGE [US/US]; 17 Quincy Street, Cambridge, MA 02138 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): SIA, Samuel, K. [CA/US]; 300 Western Avenue, #3, Cambridge, MA 02138 (US). LINDER, Vincent [CH/CH]; c/o A. Linder, Rue de Soleure 11, CH-2525 Le Landeron (CH). PARVIZ, Babak, A. [IR/US]; 620 N34th Street, Apt. #625, Seattle, WA 98103 (US). SIEGEL, Adam [US/US]; Perkins Hall 337, 35 Oxford Street, Cambridge, MA 02138 (US). WHITE-SIDES, George, M. [US/US]; 124 Grasmere Street, Newton, MA 02158 (US).

(74) Agent: OYER, Timothy, J.; Wolf, Greenfield & Sacks, P.C., 600 Atlantic Avenue, Boston, MA 02210 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

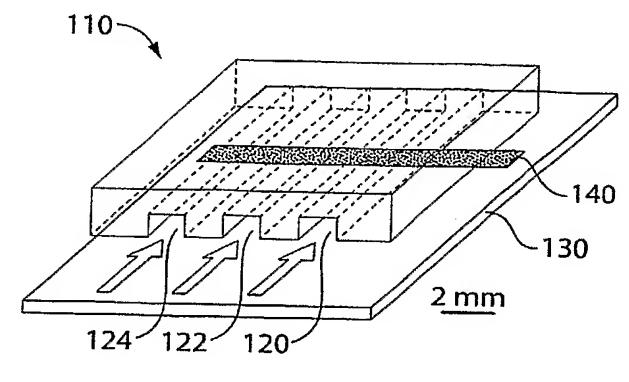
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- with amended claims

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: ASSAY DEVICE AND METHOD



(57) Abstract: An assay method is described, which comprises the steps of immobilizing a binding partner (e.g., an antigen or antibody) for an analyte to be detected (e.g., an antibody or antigen) on a portion (140) of a surface (130) of a microfluidic chamber (120,122,124); passing a fluid sample over the surface and allowing the analyte to bind to the binding partner; allowing a metal colloid, e.g., a gold-conjugated antibody, to associate with the bound analyte; flowing a metal solution, e.g., a silver solution, over the surface such as to form an opaque metallic layer; and detecting the presence of said metallic layer, e.g., by visual inspection or by measuring

light transmission through the layer, conductivity or resistance of the layer, or metal concentration in the metal solution after flowing the metal solution over the surface.

O 2005/066613 A1